TWO EMPIRICAL ESSAYS ON THE DRIVERS OF NEW PRODUCT PERFORMANCE FOR FAST MOVING CONSUMER GOODS

by

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A dissertation submitted to the faculty of
The University of Utah
in partial fulfillment of the requirements for the degree of

Doctor of Philosophy

in

Business Administration

David Eccles School of Business

The University of Utah

May 2015

The University of Utah Graduate School

STATEMENT OF DISSERTATION APPROVAL

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ABSTRACT

These empirical papers contribute to both a body of academic research and to anecdotal trends in business. The first paper deals with the implications of the brand's existing portfolio structure for current new product performance. Marketing logic has long recommended keeping a brand focused and concise, but some recent analyses have brought some doubt on the validity of such strong recommendations. The first chapter of this dissertation builds on this conflicting evidence by showing that, on average, high quality positioned and proliferated brands enjoy higher new product success. Thus, the rich keep getting richer. Existing recommendations to avoid too much proliferation and expansion in the marketing literature are likely causing brands to under expand, rather than over expand. By following cautions of overexpansion, many large brands may actually be missing out on opportunities to expand.

The second chapter of this dissertation takes a different perspective and considers the performance implications of being local versus being national. Thus, instead of focusing on the benefits of a large, proliferated brand, this essay tries to flip the coin and ask when the little guy can still compete and succeed. Anecdotally, small and local brands have appeared to have some measure of success in many industries. Retailers like Whole Foods and Trader Joe's have even capitalized on such emerging trends by focusing their product assortment strategies to include more of these product offerings. The marketing literature, however, offers little to no insight on the advantages and

disadvantages of being local (versus being national). This essay theorizes and then shows that national product launches enjoy intense in-market retail distribution advantages, but that local product offerings actually sell better per retail outlet and command price premiums. Thus, certain retailers may stand to benefit from stocking more local product offerings.

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ACKNOWLEDGEMENTS

I would like to acknowledge the professional and personal support I have received from the University of Utah's David Eccles School of Business, in particular the members of the marketing department. I have received exceedingly strong and dedicated research support from William Moore, Stephen J. Carson, Shyam Gopinath and, of course, my thesis advisor, Abbie Griffin. The ability to directly conduct research with so many faculty members has greatly improved my skills and abilities as a researcher. My teaching capabilities have also been heavily guided and improved by the wise words of Gary Grikscheit. The marketing department as a whole has well prepared me to venture forward with all aspects of my academic career.

My fellow PhD students in the David Eccles School of Business have also been a great help to me, both personally and professionally. In particular, I would like to acknowledge my marketing cohort members: Keith Botner and Oscar Moreno. I received an immense amount of insight, healthy competition, and friendship from these two individuals that greatly improved my PhD experience. From the strategy department, J. Cameron Verhaal and Leif Lundmark have been very strong co-authors that have been a true pleasure to conduct ongoing research with.

Additional support for my research also came from the Product Development Management Association (PDMA), which partially funded these thesis papers through a dissertation proposal competition. I would like to sincerely thank the PDMA for both

their monetary and ongoing professional support.

Lastly, my friends and family have played a truly vital role in supporting me throughout the process of attaining my graduate degree. Thanks to everyone who has helped along the way. In particular, I would like to acknowledge my wife and best friend, Amanda, who has been there for me throughout this process of pursuing and attaining my PhD. She has made great sacrifices and has been an extremely strong guiding presence. I would also like to thank my parents, David and Patricia, for constantly preparing me from my very first years to have the work ethic, confidence, and character to undertake this task. Thanks mom and dad. Again, thank you to everyone who has helped me grow as a person. I owe a large portion of my professional and personal accomplishments to all of you.

CHAPTER I

LINKING THE STRUCTURE OF BRAND PORTFOLIOS TO NEW PRODUCT PERFORMANCE

Abstract

In this research, I investigate the relationship between the structure of the brand portfolio and new product performance. The brand portfolio is defined along two key dimensions: (1) ***brand quality*** and (2) ***brand proliferation***. I find evidence that the brands that are more proliferated and of higher quality produce more successful new product introductions. I argue that the higher new product performance observed for more proliferated, higher quality brands may be attributed to both advantages of firm product development abilities and product acceptance by the marketplace.

Introduction

New products are very important to short-term firm performance, particularly in fast moving consumer goods (FMCGs) (Cooper 1996; Stinson 1996). Successful innovation also can directly benefit long-term brand level outcomes such as brand equity (Slotegraaf and Pauwels 2008). The potential benefits of successful innovation are well understood not only by managers, but also by the general public. Stock market returns to innovation can be quite large, particularly when the innovation is radical, breakthrough or pioneering in nature or when a high quality product results from the innovation effort (Sood and Tellis 2009; Sorescu and Spanjol 2008; Srinivasan et al. 2009). In fast moving consumer goods categories in particular, which are the focus of the current research, successful innovation is known to set apart the performance of firms (Sorescu and Spanjol, 2008).

Yet, despite the fact that innovation is key to driving business performance and that very innovative products are three to five times more successful than incremental or

copycat innovations, the majority of observed innovation activity is incremental (Barczak, Griffin and Kahn 2009). Frankly, developing a competent innovative capability remains a challenge for many organizations across all industry types, as the majority of products introduced tend to fail (Griffin 1997; Subramaniam and Youndt 2005). Products fail from one of two basic reasons: (1) the product was not good enough (i.e., it was of low quality, did not fit a defined market need, etc.) or (2) despite being a good product the product was not accepted by the market due to poor introductory marketing.

The ability to produce successful innovations that turn into products with distinct product advantages and to successfully market those new products is important firm capabilities that thus may drive overall firm success. Many factors may impact a firm's ability to perform these two tasks and are relevant for empirical investigation. In this particular study, I focus on one core factor of interest: the structure of a brand's existing portfolio. The brand's portfolio structure may be conceptualized in terms of ***brand quality*** and its ***brand proliferation***.

In this research, I identify and investigate two core aspects of brand quality (category brand equity and brand position) and four aspects of brand proliferation (product proliferation, vertical line range, house of brands, and external category presence) and investigate their impact on new product performance. Category brand equity is the brand's ability to generate revenue in the category (Ailawadi, Lehmann and Neslin 2003), while the brand position is the positioning of the brand in the category in terms of its price level (Kirmani and Rao 2000). Both factors are expected to impact firm internal and market external perceptions of ***brand quality***, but in different ways. Factors of ***brand proliferation*** within in the category include the number of products offered

(product proliferation), the range of the brand across high and low price points (vertical line range), and the number of brands in its distribution network within the category (house of brands). A brand also may be proliferated across product categories (external category presence).

Increased brand quality raises both consumer and firm expectations for new product success. Further, as a brand's portfolio is proliferated, the brand inherently grows its size in the market and its base of firm resources. Additionally, it grows in its appearance to consumers. The brand may become viewed more as a generalist, rather than as a specialist. I posit that both innovative capability and market acceptance of new products result from the brand's portfolio structure. Empirically, I test how portfolio structure impacts innovative output, market acceptance, and subsequent new product performance of 2,236 fast moving consumer good (FMCG) introductions in 2009 and 2010 in U.S. retail grocery and drug store outlets. These findings suggest that brand portfolios are quite important in driving new product performance and that many brands may be suboptimally structured.

Theoretical Development

Brand quality may be signaled to the market in two distinct ways: through (1) establishing category level brand equity and (2) positioning the brand as high-end. Importantly, the raw correlation in the data between category equity and brand position is very low at only 0.06, which suggests that high price positioned brands and high equity brands are not necessarily the same. High equity brands may be positioned as economic (e.g., Wal-Mart, Southwest Airlines) or high-end (e.g., Apple, BMW), while low equity

brands may also be positioned as low-end (e.g., Marcal toilet paper) or high-end (e.g., Hansen's soda). Ailawadi, Lehmann and Neslin (2003) report a similarly low correlation for these two variables in an array of consumers packaged goods categories. The replication of this result helps to reestablish a brand's category level equity and category level price position as two separate and important variables to consider. Thus, brand quality may be conveyed in two very different ways: through a high-end positioning and/or through the brand's ability to generate revenue, which is not tied to a distinct positioning level. The first research question of interest is to consider how category level brand equity and brand position in the category impact new product performance.

A brand's ability to generate revenue above and beyond an unbranded equivalent represents its category level brand equity (Ailawadi, Lehmann and Neslin 2003). Equity in the category may assist the brand's market perception in a multitude of ways (Erdem 1998). For example, category equity may send quality signals, which may assist in promoting new product trial (Heil and Robertson 1991; Kirmani and Rao 2000). Such brands also receive both (a) a higher share of customers and (b) a higher rate of behavioral loyalty among those customers (Fader and Schmittlein 1992). Thus, the first hypothesized relationship is that brands with high category level equity will have more successful new product introductions.

Interestingly, if H1 holds, I am suggesting that new product introductions by strong brands are likely to build category level equity over the long-term. Thus, a reciprocal and building effect is likely to exist, which aligns with the findings of recent work in the area (Slotegraaf and Pauwels 2008).

High-end brand positioning represents a clear tradeoff for firms. A high-end brand

positioning is likely to forfeit sales because fewer customers exist in that segment of the market; however, such a positioning may help a brand maintain an elevated appeal to the market (Carroll and Swaminathan 2000; Randall, Ulrich and Reibstein 1998). Firms with high-end positioned brands may be expected to have an increased capacity to innovate as low-end positioned brands likely survive on cost leadership, rather than product leadership. High-end positioning also may improve new product performance, even when product quality is held constant, due to quality signaling advantages (Kirmani and Rao 2000). Thus, despite the downside of giving up initial sales due to fewer potential customers, positioning at the high-end may provide brands with a long-term market advantage as their new product introductions may perform better. The second hypothesis predicts that high-end positioned brands will have more successful new product introductions.

Using this logic, I may imagine a scenario where the brand starts off as small and highly positioned and then grows the brand portfolio over time by introducing successful new products with support of the initial high-end brand position. A brand may be proliferated in a variety of ways: within the category by offering more products (product proliferation); by extending its products from the high to the low-end of the category (vertical line range); and by belonging to a house of brands distribution network (house of brands). Additionally, a brand may proliferate across categories by extending the brand name into other product categories. These various means of proliferating the brand could potentially have different impacts on the firm's innovative capabilities and on the likelihood of market acceptance for its new products. Thus, I next explore their unique links with new product performance outcomes.

From an innovation capability perspective, firms with proliferated product portfolios may be prone to (1) a bias against launching the best possible product and (2) a history of maintaining and selling poor performing products. Managers of large portfolio brands may fear that new products could cannibalize sales from existing products, and thus they may refrain from potentially profitable innovation opportunities (Chandy and Tellis 1998). Furthermore, according to Biyalogorsky, Boulding and Staelin (2006), managers are likely to persist with new product failures. This may lead to the failure to remove a subperforming product from the market and even an escalation of investment in the product. A firm with an overly expanded offering of products may also help competitors through overextending and lacking a clear vision for its product launches and overall brand strategy (Thomadsen 2012). A large product portfolio brand may just be an inefficient brand that produces poor innovations to maintain market share goals.

However, the simple story that brands with limited product portfolios will produce better products due to specialization advantages seems incomplete. Perhaps managers can learn from past product innovation attempts in the category and incorporate that knowledge into new product development practices. What if the brand manager also can leverage its significant source of market information (such as customer demographics and purchase behaviors) derived from its existing product portfolio to better match developed product offerings with potential market needs? Organizational learning theory suggests that the benefits of pure specialization may be an oversimplified, naïve view of the world. Much empirical research on innovation supports this opposing theoretical viewpoint.

Organizational learning can be improved through diversifying topics and tasks

and incorporating a variety of information inputs (Kogut and Zander 1993; Schilling et al. 2003). For example, Moreau and Dahl (2005) find that when incremental problem solutions are not available, experimental subjects tend to become more creative and are more likely to find breakthrough innovations. Brand specialization may lead to obvious, yet suboptimal solutions during the innovation process.

Product proliferation by the brand also could have some significant implications for market acceptance of the brand's new product offerings. From one view, adding another product to the portfolio when a brand already offers numerous products may lead to cannibalization and a general lack of growth opportunity for the new product launched. Quelch and Kenny (1994) advanced the prescriptive advice of avoiding over expansion of product lines with the provocative title and associated substantive claim: "extend profits, not lines." In this paper, it was argued that product proliferation of the brand generally leads to cannibalization by unnecessarily offering too many similar products that fail to drive actual business revenue growth.

Conversely, product proliferation may strengthen brand appeal through a category competency signal (Berger, Draganska and Simonson 2007). Indeed, product proliferation is known to be a viable entry strategy for competitive markets (Bohlmann, Golder and Mitra 2002). An interesting aspect of a product proliferation strategy is that any brand can pursue it, whether that brand is currently large or small or differs on any other dimension of interest. Through proliferation of product offerings, the brand can spur interest and awareness for the brand's future product offerings and thus improve their individual performance levels. Therefore, product proliferation may allow brands to grow significantly, one successful new product at a time. Hypothesis 3a is that brands

with more product proliferation will have more successful new product introductions. However, the impact of product proliferation on new product performance may differ depending on the brand's position in the category. From a product acceptance standpoint, proliferation of offerings by high-end brands may be detrimental to images of product superiority.

A move toward offering more products may damage the image of craftsmanship in product development. If a firm with a high-end brand produces large assortments of products, can it really be focusing its attention just on crafting the perfect high-end product? Extension into lower quality consumer segments by high-end positioned brands is already known to damage brand quality images (Loken and John 1993; Randall, Ulrich and Reibstein 1998). I suggest here that even product proliferation ***within the same brand positioning range*** may damage perceptions in a similar pattern. With too much product proliferation, even a new high-end positioned product may damage the quality signal of a high-end brand position. So, hypothesis 3b is that the impact of product proliferation on new product performance will be negative for high-end positioned brands.

Vertical line range captures how far the brand extends its product offerings from high to low prices within the category. Randall, Ulrich and Reibstein (1998) showed that extending the product line into premium offerings could improve brand equity, while extending the product line into economy offerings can damage brand equity. The authors further argued that firms might still be best off to offer economy products in order to maximize profits, despite potential damage done to brand equity.

Another potential benefit of offering both low and high-end products is flexibility to launch the best possible products in the future. Establishing a wider vertical line can

reduce constraints on brand image as just a high-end or just a low-end brand. Without the brand image constraint of serving only high-end or low-end segments (Aaker 1991; Loken and John 1993), the firm can effectively offer the best products that are produced by their new product development teams. Thus, vertical line range may provide firms with new product development flexibility. So, hypothesis 4 predicts that brands with higher vertical pricing ranges will have increased new product performance.

In a house of brands network, a firm markets multiple brands within the same category (Keller 1998). Similar to a product proliferation strategy, a house of brands network may allow the firm to build more organizational knowledge to use in product development and also may act as a quality signal in the marketplace. Brands that are part of a house of brands network within the category may have access to category specific information from the other brands in the firm's category network. However, one issue with a house of brands structure is that a firm may offer several relatively undifferentiated brands in the same network, as has happened with GM's car brands. Thus, although the structure adds organizational knowledge and distribution advantages that may improve product development and performance, it can lead to the introduction of brands that are positioned too close to one another. Thus, I expect that a new brand introduction into an existing house of brands network will have lower performance levels. Therefore, hypothesis 5a predicts that membership in a house of brands network will have a positive impact on new product performance. However, hypothesis 5b predicts that membership in a house of brands network will have a negative impact on new brand performance.

Expanding a brand across product categories can signal quality through what is

known as an umbrella branding strategy (Erdem 1998; Wernerfelt 1988). Still, in practice, most brands choose to compete in a single product category (Dacin and Smith 1994). Thus, the revealed preference of brand managers appears to be skewed towards minimizing the growth of the brand portfolio. There are, of course, some notably successful exceptions: Yamaha, Honda and Nike all extend the same brand name across a multitude of product categories. Private label brands go even further, usually extending a single brand name across nearly all-possible consumer goods product categories (Dhar and Hoch 1997). A significant number of brands also choose the middle road and extend across only highly related product categories. For example, Proctor & Gamble has extended the Ivory brand name only across various soap categories and the Tide brand name across only laundry care categories.

Indeed, this fear of brand overexpansion seems ubiquitous (and potentially unfounded). Fear of too much firm expansion is even present in shareholder reaction to cross-industry classification of firms (Zuckerman 2004). Shareholders are apparently scared away when a firm cannot be narrowly defined in a single industry classification. Further, although concerns of brand dilution from overextension are prevalent in the literature (Aaker 1991), a meta-analysis of brand performance findings found dilution effects to generally be null (Keller and Sood 2003). Thus, eliminating the fear of over-expanding the brand portfolio may actually allow brands to achieve a wider and greater consumer appeal.

In a parallel context, through studying the careers of movie actors, Zuckerman et al. (2003) show that these concerns of over expansion of the actor's brand can be eliminated through proper movie career portfolio strategy. Specifically, by generalizing

across movie genres early in their careers, actors like Tom Hanks can achieve significant success without the limitation of typecasting that can ruin promising careers of more specialized young actors (such as Orlando Bloom did with fantasy movies).

By expanding the early scope of his brand reach Tom Hanks is accepted by moviegoers in a wide variety of roles. This capability of generalization also allows Tom Hanks to pursue more daring or innovative roles. *Castaway* is one example of a movie that requires an actor to be funny, dramatic, and serious and all things in between. In addition to having these capabilities, Tom Hanks first needed consumers and movie studios alike to *perceive that he possessed these capabilities*. Turning to FMCG brands, I liken those brands with cross category brand presence to Tom Hanks. These brands chose to diversify across product categories early and developed a multitude of innovative capabilities and firm know-how in order to serve markets with quality new products.

Furthermore, brands that compete across product categories may possess initially seemingly unrelated information that actually may be of use. Cross-category innovations may relate to aspects such as packaging or similar cross-category market needs and opportunities (such as an environmentally conscious consumer base). Research on the impact of technological diversity on innovation outcomes supports this general notion of a potential innovation advantage for brands that are expanded across seemingly unrelated product categories. Information and know-how gained from diversifying R&D activity can help firms innovate because this information is not easily acquired from outside the firm (Miller 2006; Teece 1980). Although narrow technological bases are more efficient for firms (Hannan and Freeman 1977), they lack an adaptation capability (Mills and Schumann 1985). Indeed, firms with diverse technological bases are generally able to

produce more innovations and provide more impact per innovation (Ahuja and Lampert 2001; Sampson 2007; Srivastava and Gnyawali 2011).

Organizational learning theory supports these general claims too. Organizational memory, or knowledge gained through prior organizational experiences, can improve creativity and new product development success (Moorman and Miner 1997). Expanding the brand across product categories is likely to increase the brand's organizational memory. Such knowledge is expected to be particularly useful when entering a new category, when compared to a brand with no such upfront knowledge. Thus, hypothesis 6a predicts that external category brand presence will have a positive impact on new product performance and hypothesis 6b predicts this effect to be larger for new brands. Table 1.1 presents the overview of the hypotheses to be tested.

Table 1.1

Summary of Hypotheses

	Hypotheses
H1	Brands with high category level equity will have more successful new product introductions.
H2	High-end positioned brands will have more successful new product introductions.
H3a	Brands with more product proliferation will have more successful new product introductions.
H3b	The impact of product proliferation on new product performance will be negative for high-end positioned brands.
H4	Brands with higher vertical pricing ranges will have increased new product performance.
H5a	Membership in a house of brands network will have a positive impact on new product performance.
H5b	Membership in a house of brands network will have a negative impact on new brand performance.
H6a	External category brand presence will have a positive impact on new product performance.
H6b	The positive impact of external category presence on new product performance will be larger when the product is introduced by a new to category brand.

Methods

Data from the Information Resources, Inc. (IRI) marketing database (Bronnenberg, Kruger and Mela 2008) are used to test the hypotheses. Store movement histories for products across 31 fast moving consumer goods' categories are included in this dataset. A product is defined between the brand and stock keeping unit (SKU) level. For example, Pepsi Maxx is a product, Pepsi is the brand, and the various SKU variations of Pepsi Maxx are aggregated to the product level for analysis. These categories include a variety of food and nonfood categories. For the analysis, I focus on the most recent update of the data, which span from 2008 to 2011. There are 50 unique markets included in this dataset; I collapsed the market level data into a single national level dataset for analysis.

Given four years of weekly data (2008-2011), I utilize the first year as a calibration period. Sales histories are tracked during this period to establish the existing products on the market. New products are then identified as those products not in the 2008 data, but in the data on or after the first week of 2009. I assume a product is new if (1) it was not sold at anytime during the 2008 calibration period and (2) it is sold thereafter.

I must also determine a window of performance observation for each new product identified. There is no particular precedent here and, because I consider a reasonable variety of product categories, certain new products may have faster life cycles than others. I settle on a 52-week window to satisfy two important considerations. First, this window allows for several repurchase windows to occur. A previous paper using this database (Bronnenberg, Kruger and Mela 2008) found that purchase cycles for the

categories ranged from 29 days (milk) to 106 days (razor blades). Thus, even for a slow repurchase cycle category like razor blades, this observation period allows the average consumer to consider the new product during at least three unique purchase occasions. Given low risk of adoption of a new product in a low priced category (as opposed to big ticket categories like consumer electronics or cars), it is likely that if a consumer does not adopt the new product through the first 52 weeks, adoption will not occur. Secondly, the 52-week window helps to eliminate concerns of seasonality (Krider and Weinberg 1998). Because launches can occur at any point during the year, a shorter window may cause certain new product launches to seem particularly successful or unsuccessful due to exogenous seasonality conditions.

To have a 52-week performance observation for each new product of interest, I must also censor the sample on the right hand side. Products launched in 2011 cannot be included in the sample because 52 weeks of observation for these products would not be feasible. Therefore, I include only new products launched in 2009 and 2010. The data from 2008 are used solely as the calibration period for new product identification, while the 2011 data are used solely as part of the 52-week new product performance window for those products launched sometime in 2010.

The resulting sample includes 2,313 new products; 42.37% of these new products are launched by brands that are new to the category at the time of launch. Thirty of the 31 product categories include some new product launch activity during this observation period; the lone unrepresented category is the hotdog category. Table 1.2 breaks down the entire sample of new products by category. This table includes the number of new product introductions per category and the percentage made by new to category brands.

Table 1.2

New Product Launches by Category

Category	New Products	New Brands
Beer	660	25.30%
Blades	28	17.86%
Carbonated Beverages	63	53.97%
Cigarettes	113	12.39%
Coffee	76	76.32%
Cold Cereal	101	44.55%
Deodorant	67	14.93%
Diapers	16	56.25%
Facial Tissue	17	82.35%
Frozen Dinner Entrees	126	65.87%
Frozen Pizza	43	76.74%
Household Cleaning	89	65.17%
Laundry Detergent	34	58.82%
Margarine/Butter	9	77.78%
Mayonnaise	9	66.67%
Milk	56	58.93%
Mustard/Ketchup	27	88.89%
Paper Towels	18	66.67%
Peanut Butter	11	90.91%
Photo	5	40.00%
Razors	16	18.75%
Salty Snacks	196	65.82%
Shampoo	220	27.27%
Soup	49	71.43%
Spaghetti Sauce	45	82.22%
Sugar Substitutes	18	83.33%
Toilet Tissue	16	81.25%
Toothbrushes	104	22.12%
Toothpaste	36	5.56%
Yogurt	45	42.22%

The dependent variable of interest is $dollars_{ijt}$, or, the dollar sales of new product i in category j in week since entry t. Therefore, weekly sales are measured for each product for the first 52 weeks on the market. Dollar sales represent a clear, if not the dominant, strategic goal for firms (Olson 1996). National retail dollar sales are measured over the first 52 weeks of new product introduction as the dependent variable of core interest for several key reasons. Product level sales represent an appropriate metric for both short term and long-term commercial success of the product itself (Hultink and Robben 1995). Indeed, firms repeatedly indicate a clear need to understand and measure product level success in more detail (Barczak, Griffin and Kahn 2009; Griffin 1997; Griffin and Page 1993). Sales of the new product also represent a reasonable metric of both product level and firm level success; sales of the product directly tie into business revenue goals. Other potential measures of new product success (such as technical success) may be less important for firm level goals (Hultink and Robben 1996).

The right hand side variables are grouped into three distinct variable categories: category level factors, brand level factors, and product level factors. The category level factors are aggregated at the category-week level and generally represent the competitive conditions within the category faced by the new product introduction. Depending on the specific variable, the brand level factors are aggregated at one of two levels: (a) the brand-week level or (2) the brand-week-category level. These measures combine to capture brand portfolio characteristics; the impact of these brand portfolio characteristics on new product performance represents the core purpose and contribution of this study. The last variable category is the product level factors, which capture a set of control variables at the product-week level of aggregation. I start by discussing the control

variables before moving on to discuss the independent variables of particular interest.

Concentration is included in the analysis to account for the degree to which a small set of brands control a significant portion of the market. Category concentration is measured using a Herfindahl-Hirschman Index (HHI) of all brand market shares in category j during week t. This varies slightly from some other commonly used concentration ratios like the Big Four or Big Eight calculations. These ratios simply add up the percentage shares of the top firms in the industry to whatever arbitrarily specified cutoff point (such as four or eight in these examples). The HHI is slightly superior in that it considers the market share of all firms in the industry and does not require the specification of an arbitrary cutoff point. The HHI theoretically ranges from 0 (no concentration) to 1 (completely concentrated). In practice, the concentration measure comes close to filling this range as the minimum observed concentration rate is 0.03 and the maximum observed concentration rate is 0.99.

Competition intensity is expected to have a negative impact on new product performance (Henard and Szymanski 2001). I control for competition conditions with two variables of interest: competing brands and competing products. Competing brands are measured as a count of brands present in the category. Competing products are measured as the average number of products offered by the brands competing in the industry.

Private label share is an important variable to consider when studying how competitive conditions may impact national brand performance (Steiner 2004). Private label share is measured as the percentage of total category volume moved by the private label brand within the category. Private label share is invariably higher at certain store

locations or even in certain markets as demonstrated by Dhar and Hoch's (1997) seminal work on the subject. It is unclear whether high private label share may help or hurt branded new product introductions. From one perspective, private labels are low (or even no) equity alternatives to national brands that cannot effectively compete on any means other than cost leadership (Ailawadi, Lehmann and Neslin 2003). However, an opposing view is prevalent which suggests that private labels should be viewed as brands in their own right and that they are strategic vehicles for driving retail store loyalty (Corstjens and Lal 2000). The former view may suggest that high private label share represents an opportunity for new product introduction by national brands. The latter view may suggest that this opportunity is not quite so strong. The empirical evidence shows that private label brands generally command high share in categories with less dominance among national brands (Hoch and Banerji 1993; Raju, Sethuraman and Dhar 1995). High private label share indicates that national brands are weak in the category. Thus, I expect private label share to generally indicate favorable conditions for new product launch.

Following the literature, total category dollar sales is also included to estimate total demand for the category (Nijs et al. 2001). Category sales are updated weekly to account for changes in demand. I anticipate that high category demand will be associated with increased performance of associated new product introductions.

Many brands introduce supporting products of special variety, which include seasonal offerings, variety pack offerings, or limited time offerings. These products do not generally serve as standalone product offerings; instead they serve as novelty or ancillary offerings to the brand's core business. Thus, I do not consider such products in the new product launch analysis. The strategic goal of a special holiday product is likely

to be much different than that of a more traditional product. So, I consider the brand's array of seasonal, limited and variety offerings through a single variable: novelty sales. This variable is measured empirically as the percentage of total brand volume sold via these special product offerings.

Bulk quantity discounting is a common means of marketing large packaged items to end consumers (Monahan 1984). Thus, I incorporate the brand's rate of bulk discounting as another brand level variable of interest. Bulk discounting is measured as the price per volume price difference between the largest and smallest sized items offered by the brand. Thus, this variable captures how much a consumer saves per ounce when purchasing the largest item available as opposed to the smallest item available.

Products introduced by new to category brands are expected to perform worse than those introduced by brands already present in the category. New to category brand status is verified through the same means as that which identifies the new product sample. A brand is deemed as new to the category if the brand registered no sales in the category prior to the week of interest. The data from 2008 is again used as a calibration period to determine historical brand sales and category presences.

Several variables are included as control variables at the product-week level of aggregation. These variables generally capture the three remaining marketing tactical variables (in addition to the product): price, promotion, and place. Distribution activity is captured through four specific measures: stock keeping unit (SKU) count, store size, grocery and stores. Distribution represents an important intermediary goal for ultimate new product performance (Bronnenberg and Mela 2004) and it can act as an important competitive tool (Bonanno 1987).

The method I use to measure the four distribution variables of interest (the count of stores the product is distributed in) are to first analyze the first and last week a particular SKU is sold in a particular store. That particular SKU level version of the product is empirically represented as being distributed to that store for all weeks in between those store level SKU entry and exit dates. The alternative to this measurement method is to rely on store movement, which greatly underestimates the degree of store level distribution activity. Aggregating upwards from the SKU level to the product level, the product receives a count of the number of SKUs offered in each store in each week of observation. The data were then aggregated from the product-store-week level to the product-national-week level and the four distribution variables of were generated for analysis.

Stores are the estimated number of stores the product is distributed in during week t. SKU count is the estimated average number of SKUs offered per store. Store size divides the total ACV (average carrying volume) of the distributing stores to reach an average per store ACV value. Lastly, grocery estimates the percentage of volume sold in the grocery store channel (with the remaining percentage of volume being sold in the drug store channel). I expect the SKUs offered per store, the number of stores and the average store size to all have positive impacts on new product performance. It is unclear whether distribution in the grocery or drug channel will be more beneficial for new product performance.

Product prices and promotional activity are captured through volume movement information. I rely solely on store movement for feature, display and price information as it is less reasonable to make week-over-week assumptions about unobserved variables of

this type. For store distribution, it is reasonable to assume a store always carries a SKU until the point that it stops carrying it. It is cumbersome for stores to change out SKUs due to ordering patterns, B2B relationships, and the ubiquitous use of planograms.

Product level price and promotional information are also controlled for as they can heavily influence product performance (Horsky and Nelson 1992). Products may be sold on feature, display, or on both feature and display. Feature is the inclusion of the product in the store's own promotional advertisement to store customers (whether prospective or existing). Display is the act of placing a product on a special location within the store, whether that is an end cap aisle or other prime location. Placing an item on feature and display at the same time of course reinforces both in store and out of store promotional tactics. I expect both display and feature to have a positive impact on new product performance, with the combination of both tactics having a much larger impact. Price is measured as the average price per volume equivalent unit of all volume sold for the product across the national dataset in week t. I expect price to have a negative impact on new product performance.

The two brand portfolio constructs of interest are brand quality and brand proliferation. Brand quality is captured by two variables of interest (category level equity and brand position), while brand proliferation is captured by four variables (product proliferation, vertical line range, house of brands membership, and external category presence).

Category equity (H1) is measured following the revenue premium method (Ailawadi, Lehmann and Neslin 2003). This method takes the difference between revenues generated in the category by the focal brand and the private label brand. From a

theoretical viewpoint, this method relies on the argument that the private label brand represents the closest approximation to an unbranded equivalent. The brand's ability to generate revenue above and beyond this unbranded equivalent represents the brand's revenue premium.

Brand position (H2) is the average price per unit of the brand less the average price per unit of the private label brand. This follows the basic empirical logic of the revenue premium (Ailawadi, Lehmann and Neslin 2003), yet captures what is essentially a price premium. By measuring the firm's price position in the category relative to an unbranded equivalent, I can assess its average brand position.

Product proliferation (H3) is measured as the number of products offered by the brand within the category, less the new product of interest. Vertical line range (H4) captures how far the brand extends its offerings within the product category. Following Randall, Ulrich and Reibstein (1998), I measure vertical line range as the difference between the highest average plain unit price and the lowest average plain unit price for each product offered by the brand. A house of brands network within the category (H5) is also considered as a brand proliferation variable of interest. This variable is measured with a categorical variable. If the brand is part of a house of brands network, meaning that at least one or more other brands are offered within the category within the same parent brand network, a one is placed for the house of brands variable. External category presence (H6) is measured as the count of other categories in which the brand competes during the week of new product performance observation. Variable descriptions for the included model variables are provided in Table 1.3. Descriptive statistics of these variables are provided in Table 1.4.

Table 1.3

Variable Descriptions

Variable Type	Variable	Description
Dependent	Dollars	Dollar sales of new product
Control	Concentration	HHI index of brand volume share
Control	Competitive Brands	Number of competitor brands
Control	Competitive Products	Average number of products offered per competitor
Control	Private Label Share	Volume share of private label brand
Control	Category Sales	Dollar sales of the category
Independent	Category Equity	Revenue premium of brand over the private label
Independent	Brand Position	Average price per unit of the brand
Independent	Products	Number of other products offered by the brand
Independent	Vertical Line Range	Difference between the highest and lowest priced item offered by the brand
Independent	House of Brands	Dummy variable indicating that brand is in a house of brands network within the category
Independent	External Presence	Number of other observed FMCG categories that the brand competes in
Control	Novelty Sales	Percentage of brand volume sales stemming from seasonal, limited, or variety pack offerings
Control	Bulk Discounting	Difference between the price per volume of the largest and smallest sized item for the brand
Control	New Brand	Dummy variable for new to category brand status
Control	SKU Count	Average number of SKU's offered per store for the new product
Control	Store Size	Average acv (average carrying volume) estimate of the stores that the new product is distributed in
Control	Grocery	Percentage of the new product's volume sold in the grocery channel
Control	Stores	Number of stores the new product is distributed in
Control	Feature	Percentage of the new product's volume sold on feature, but not on display
Control Variable	Display	Percentage of the new product's volume sold on display, but not on feature
Control Variable	Feature + Display	Percentage of the new product's volume sold on both feature and display
Control Variable	Price	Average price per volume of the new product across package sizes

Table 1.4

Descriptive Statistics

Variable	Mean	SD	Min	Max
Dollars ($)	$4,727	$34,927	$0.25	$1,480,368
Concentration (#)	0.15	0.11	0.03	0.99
Competing Brands (#)	90.26	58.82	1.00	274.00
Competing Products (#)	2.33	0.94	1.00	10.00
Private Label Share (%)	9.04%	12.90%	0.00%	91.96%
Category Sales ($)	$1,365,418	$2,440,676	$484.82	$24,900,000
Category Equity ($)	-$28,775.51	$572,014	-$9,563,080	$4,587,091
Brand Position ($)	$5.96	$5.73	$0.12	$169.99
Products (#)	3.26	5.50	0.00	43.00
Vertical Line Range ($)	$8.64	$20.95	$0.00	$258.20
House of Brands (1=yes)	43.83%	49.62%	0.00%	100.00%
External Presence	0.29	0.75	0.00	8.00
Novelty Sales (%)	2.13%	8.60%	0.00%	99.88%
Bulk Discounting ($)	$27.07	$125.46	$0.00	$2,923.74
New Brand (1=yes)	0.41	0.49	0.00	1.00
SKU Count (#)	1.59	1.22	1.00	11.23
Store Size ($ millions)	$31.33	$18.16	$0.08	$146.24
Grocery (%)	90.58%	23.47%	0.00%	100.00%
Stores (#)	196.35	404.47	1.00	1,810.00
Feature (%)	2.75%	9.62%	0.00%	100.00%
Display (%)	11.70%	24.96%	0.00%	100.00%
Feature + Display (%)	0.64%	4.11%	0.00%	100.00%
Price ($)	$22.68	$35.29	$0.08	$666.96

Results

I estimate both the OLS fixed effects panel data model and Hausman and Taylor (1981) endogeneity correction model, for robustness. In the H&T model, all of the right-hand side variables are considered potentially endogenous and specified as such. Both results are reported in Table 1.5. Across all of the model specifications, results are stable with consistent coefficient estimates. Because of this consistency in the results, I discuss the array of results in tandem. I first focus on the panel data models as the core results and then move on to discuss the endogeneity correction results.

Table 1.5

Results

Model	M1	M2
Estimation	Fixed Effects	Hausman & Taylor
Category Level Factors		
Concentration	**-0.190***	**-0.193****
Competitive Brands	**-0.443*****	**-0.447*****
Competitive Products	**-0.581*****	**-0.588*****
Private Label Share	0.086	0.090
Category Sales	**0.128*****	**0.128*****
Brand Level Factors		
Category Equity	**0.009*****	**0.009*****
Brand Position	**0.293*****	**0.298*****
Products	**0.353*****	**0.365*****
Vertical Line Range	0.015	0.015
House of Brands	**0.123***	**0.143****
External Presence	0.038	0.044
Novelty Sales	0.045	0.046
Bulk Discounting	-0.009	-0.008
New to Category Brand	---	-0.067
Product Level Factors		
SKU Count	**0.901*****	**0.904*****
Store Size	**0.237*****	**0.238*****
Grocery	**-0.257*****	**-0.258*****
Stores	**0.712*****	**0.714*****
Feature	-0.013	-0.015
Display	**0.336*****	**0.335*****
Feature + Display	**0.636*****	**0.635*****
Price	**-0.296*****	**-0.301*****
Interaction Effects		
Brand Position x Products	**-0.137*****	**-0.139*****
House of Brands x New Brand	**-0.351*****	**-0.365*****
Ext. Presence x New Brand	**0.223****	**0.217****
Additional Model Details		
Product Effects	FE	RE
Category FE's	N	Y
Constant	**3.716*****	**4.498*****
N	81,689	81,689
I	2,236	2,236
Adj. R^2	0.768	N/A

Competitive conditions have a significant impact on new product performance (NPP). Concentration, number of brand competitors, and number of products offered per brand all have negative effects on NPP, while category sales is positive and significant at the .001 level in both model specifications. Private label share neither helps nor hurts NPP. Category demand has a consistent positive impact on NPP. The included competitive variables have significant effects in both model specifications.

New to category brand status, novelty sales and bulk discounting all have a null impact on the performance of the brand's new product introductions. Product level tactical variables significantly impact new product performance. Offering more variety in package sizes and flavors (SKU Count) improves new product sales. Distributing in more stores and in stores (Stores) with greater shelf capacity (Store Size) have positive effects. The grocery store channel appears to be less prosperous than the drug store channel. Price of the new product has a negative impact on dollar sales of the new product. Additionally, promotional tactics such as in store display and store feature advertising have significant positive impacts on new product performance. However, interestingly, feature advertising without in store display support is completely ineffective in driving sales.

Category level brand equity has a positive and significant impact on new product performance in both model specifications ($p<.001$). Support can therefore be claimed for H1. High-end brand positioning also has a positive and significant effect ($p<.001$) on new product performance, so H2 is empirically supported as well. Therefore, strong and highly positioned brands in the category bring more successful new products to market. The effect of ***brand quality*** on new product performance is clearly positive, regardless of

whether brand quality is signaled via category equity or positioning.

Product proliferation of the brand positively influences the performance of the brand's new product introductions. This result is significant at the .001 level in both model specifications, showing support for H3a. Additionally, the interaction between product variety and brand position is negative and significant at the .001 level in both specifications. Thus, support is evident for H3b as well. Brand level product variety improves new product performance for low-end positioned brands, which can offer variety instead of product superiority to the marketplace. However, product variety does not appear to be a particularly viable strategy for high-end brands to pursue.

Vertical line range of the brand within the category has no impact on new product performance. Therefore, support cannot be claimed for H4. House of brand structure improves average new product performance (M1: $p<.05$; M2: $p<.01$). However, its effect is negative on the performance of products launched by new to category brands. Thus, support can be claimed for both H5a and H5b. Lastly, the main effect of external category presence is null, while its interaction with new to category brand status is positive and significant in both models ($p<.01$). I interpret this as evidence that external category presence only assists as a market acceptance quality signal when the brand is not already present in the focal category. Therefore, support is claimed for H6b, but not for H6a.

Empirical support for the hypotheses is summarized in Table 1.6. Overall, support is gained for the claims that brands with proliferated, high quality brand portfolios generally enjoy elevated new product performance. The details of the empirical results are discussed further in the following section after the tabular presentation of the results.

Table 1.6

Review of Hypotheses

	Hypotheses	Support?
H1	Brands with high category level equity will have more successful new product introductions.	Yes
H2	High-end positioned brands will have more successful new product introductions.	Yes
H3a	Brands with more product proliferation will have more successful new product introductions.	Yes
H3b	The impact of product proliferation on new product performance will be negative for high-end positioned brands.	Yes
H4	Brands with higher vertical pricing ranges will have increased new product performance.	No
H5a	Membership in a house of brands network will have a positive impact on new product performance.	Yes
H5b	Membership in a house of brands network will have a negative impact on new brand performance.	Yes
H6a	External category brand presence will have a positive impact on new product performance.	No
H6b	The positive impact of external category presence on new product performance will be larger when the product is introduced by a new to category brand.	Yes

Discussion and Conclusion

Much debate exists about the impact of the size and structure of firms on their resulting capabilities of innovation and marketability. It was long believed that new and generally small firms were most responsible for the most innovative activity (Wade 1996; Mezias and Mezias 2000). This research demonstrates that high quality positioned and proliferated brand portfolios possess advantages of new product development capability and offer quality signals to consumers that increase trial and acceptance of new product introductions.

Focused and specialized smaller firms are generally expected to gain efficiency advantages over larger firms (Hannan and Freeman 1977; Hitt, Hoskisson and Kim 1997;

Stoll and Whaley 1983). It is argued by some that specialization can be the key to breakthrough innovation capability, while generalization is more likely to result in poor innovation output (Sorenson et al. 2006). Specialized brands are also often theorized to maintain identity advantages over more large-scale brands in the marketplace (Carroll and Swaminathan 2000; Markman and Waldron 2014).

Chandy and Tellis (2000) empirically challenged the commonly accepted notion of the incumbent's curse: that large existing firms are most likely to introduce only incremental innovations, while new, smaller firms are responsible for most of the significant innovation activity. Chandy and Tellis (2000) concluded that the incumbent's curse used to exist but that, over time, large existing firms have gained significant advantages in their abilities to innovate. It is likely that advantages in innovative capability for large firms grow over time at least in part due to processes of organizational learning (March 1991). Successful ideation can be an important factor in successful innovation (Toubia 2006) and one may expect that brand expansion may expose firms to more situations and ideas that may improve innovative capability.

I contribute to this growing counter literature that suggests that growing a firm's portfolio can improve both the ability to innovate and to market successful innovations. Brands may stand to benefit from building their brand portfolios in a variety of ways; this includes by increasing the quality and variety of brand level offerings. Such brand portfolio expansion is associated with stronger new product introduction and stronger market acceptance of those products. That new products launched by high quality, highly proliferated portfolio brands are of generally higher quality and are accepted at higher rates by the market place suggests that growth opportunities are abundant for brands.

Stripping the fear of overexpansion and overextension may serve as a deshackling of the chains that can handcuff a firm from significant potential market returns. Such results may go a long way in justifying market positions and strategies of brands with proliferated, high quality portfolios like Nike, Yamaha, and Kraft Foods.

The implications of the core findings are quite important. Cautions to avoid too much brand expansion, whether within (Randall, Ulrich and Reibstein 1998) or across (Loken and John 1993) categories may be considered too strongly by brand managers. Fears of overextension are evident in marketing folklore (Quelch and Kenny 1994); indeed, the data show that brands follow this advice and generally avoid cross-category brand expansion (see Table 1.7). This finding also supports the general opposing conclusion of Reddy, Holak and Bhat (1994) that cannibalization effects may be overstated and that prior line extensions appear to potentially help the brand in the long-term. Counter to naïve opinion, a brand positioned as a category expert (Berger, Draganska and Simonson 2007) through means of product proliferation can enjoy significantly higher new product level returns. Further, expansion along lines of a house of brands network within the category and across product categories also improves the ability to innovate and market produced new products successfully.

Thus, through proliferating the brand both within and across product categories, the brand can gain powerful market advantages. Brands that build quality positions (whether through establishing high-end positions or category level equity) are even better positioned to continue to grow the brand. However, it is important to also remember that a product proliferation strategy works best for a low-end positioned brand. Product proliferation is a less effective strategy for a high-end positioned brand.

Table 1.7

Observed Brand Expansion

Maximum Number of Product Categories	Frequency of Brands
1	1,288 (87.14%)
2	143 (9.68%)
3+	47 (3.18%)

Building a high quality and proliferated brand structure has significant positive effects on the future performance and growth of the brand, as evidenced by the higher observed new product performance in this study. Another interpretation of the results is that a few large dominant firms possess significant market advantages. These firms already possess significant product portfolios, brand portfolios, are extended across product categories, and possess high quality brand positions. These brands leverage current advantages to produce and sell better performing new products that only further strengthen these firm level advantages over the market. Small to midsized firms are in much worse positions to compete successfully in the marketplace.

So, the managerial implications of these results also may be that those firms without proliferated and quality brand portfolios must find other means of marketing their new products to achieve increased success. One option could be to differentiate the product from the dominant firm's product offerings. Thus, small to midsized firms could focus on niche product offerings. Small firms also could form alliances with other small firms to gain joint retail distribution; such activity has been successful for small producers of beer that have formed cooperative retail distribution alliances in the face of the few dominating beer producers. Lastly, small to midsized firms could build their product portfolios as well to help in competition. Increasing the number of product

offerings or building a high priced position are firm strategies that are attainable for large and small firms alike, so the benefits of brand portfolios are not unattainable for small firms.

The current results focus on how innovative capabilities and new product performance are affected by the structure of brand portfolios. An obvious extension of this work would consider how these new product introductions impact future brand portfolio structure. Does the success (or failure) of new product introductions lead firms to phase out existing products? Do brand portfolios remain relatively stagnant over time?

Future research could also test the impact of the brand portfolio on innovative output in additional product categories. I focus only on fast moving consumer goods in the current research. Although the categories represent a reasonable range of product category types that span important characteristics such as food vs. nonfood, utilitarian vs. hedonic, and short and long purchase cycles, work on completely different product categories could add significant value to the current findings.

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CHAPTER II

GEOGRAPHIC SCALE OF LAUNCH, SUPPORT TACTICS, AND NEW PRODUCT PERFORMANCE: AN EMPIRICAL ANALYSIS

Abstract

The new product performance of fast moving consumer goods depends heavily upon product adoption by both retailers and end consumers. This research investigates how market level new product performance varies based on the geographic scale of launch for 2,914 new products across 31 fast moving consumer goods categories in 50 U.S. markets. The data show that about 1/6 of the new products are launched in all 50 markets (e.g., national launches), while about 1/6 of the new products are launched in just one market (e.g., local launches). The remaining new product launches are launched with some level of geographic scale ranging between completely local and completely national. This paper investigates how the geographic scale of launch impacts market level performance. Are local or national launches more efficient per market entered? Do the tactics supporting new product launch have differential impacts that depend on the geographic scale of launch? The findings provide clear implications for how managers might improve new product success, depending on the scale of their particular new product launch.

Introduction

The growing "buy locavore" movement (Stanton, Wiley and Wirth 2012) has brought attention to the possibility that more locally focused firms may produce products that better fit the needs of their region's customers' unique needs. In response, firms are increasingly recognizing the importance of a local focus in business (Marquis and Battilana 2009). Anecdotally, many small businesses name and market their business with some tie to an aspect of local or regional importance. Academic research also has

verified that more localized or regionally based brands have prospered in certain consumer product industries such as beer (Carroll and Swaminathan 2000) and wine (Swaminathan 2001). The reduction of search costs due to the Internet has led to growing sales volumes for traditionally small market share brands and products (Brynjolfsson, Hu and Simester 2011). From the retailer's perspective, stocking specialty products such as niche products, organic products, and fair trade products can lead to increased store traffic, category sales performance, and profit margins (Bezawada and Pauwels 2013; Choi and Bell 2011). Certain retailers like Whole Foods and Trader Joe's have seen significant success embracing the trend towards stocking and selling a wide variety of local products.

Yet, not everyone has jumped on the local bandwagon. In most product categories, a few nationally distributed category leaders still tend to dominate sales volumes, shelf space, and possess higher brand loyalty among consumers (Pare and Dawes 2012). When afforded a dominant market position (such as having a high share of retail store traffic in a certain city), retailers tend to reduce assortment sizes in an apparent attempt to eliminate unnecessary product offerings and streamline costs (Dukes, Geylani and Srinivasan 2009). One may suspect it is the small, local brands and products that are most likely to be shut out of retail outlets when downsize decisions are made.

This research represents the most complete and rigorous attempt in the academic literature to empirically study the performance implications of the geographic scale of launch. Certain advantages and disadvantages for small (local) and large (national) geographic scale of launch are theoretically predicted and then empirically tested. The analysis utilizes a three stage least squares regression (Zellner and Theil 1962) to allow

for simultaneous estimation of five equations: number of markets entered (geographic scale), market level sales, market level price, market level promotion, and market level distribution intensity. Significant empirical relationships are found between these factors and other contextual factors.

This study contributes to the literature as new product launch is increasingly being viewed in both a geographic and a longitudinal sense (Calantone and Griffith 2007). Indeed, the data show that products are launched with wide ranges of geographic scale. About 1/6 of the products are launched completely locally (in just 1 metropolitan market), 1/6 of the products are launched completely nationally (in all 50 metropolitan markets, and the remaining 2/3 of the products are launched at some geographic scale between completely local and completely national. This research considers the geographic scale of launch as a continuous variable and determines how it impacts market level new product performance. Are products that are focused in a more local sense more likely to perform well? Or, do large national launches yield powerful advantages that span across markets?

Theoretical Development

Locally launched products may possess some distinct advantages. Tracy, Heide and Bell (2014) found that locally (or regionally) focused firms might develop new products that are more in tune to local consumer needs. Additionally, Fornell (1995) classically argued that as a firm grows in size, its customer satisfaction rates naturally decline. Small and local firms can better match the needs of a smaller base of customers, while large and national firms must compromise their product offerings among a

significantly heterogeneous set of consumer preferences.

In the beer and wine industries, where a large number of local firms have been documented to perform well, local firms have been successful in building an identity advantage in comparison to nationally distributed products that is based around product quality (Carroll and Swaminathan 2000; Swaminathan 2001). A product quality advantage may allow locally produced products to be more desirable to consumers, all else held equal. Indeed, localized and customized product offerings are particularly effective in encouraging consumer adoption of new products (Manchanda, Xie and Youn 2008).

It is important to stress that local products appeal to a small, yet fervent set of consumers: niche consumers. Niche products lead to a high level of loyalty, despite a small number of customers (Kahn, Kalwani and Morrison 1988). This loyalty can be a powerful factor. For example, niche products received high word of mouth activity, despite their low sales levels (Clemons, Gao and Hitt 2006; Dellarocas, Gao and Narayan 2010; Sun 2012). Furthermore, Choi and Bell (2011) found that consumers of niche brands were likely to completely forgo retail trips if one of their niche brands in one category was not reliably stocked at the store location. Thus, hypothesis 1 predicts that small (large) geographic scale of launch is associated with higher (lower) market level product sales.

Retailers such as Whole Foods and Trader Joe's have found significant success stocking and promoting local and other niche product assortments due to rising sales volumes of such products (Bezawada and Pauwels 2013; Brynjolfsson, Hu and Simester 2011). Local offerings are likely to command a loyal base of customers that are less price

sensitive. Indeed, consumers place a higher dollar value on locally grown produce over other premium produce such as organic or GMO-free (Loureiro and Hine 2002). Consumer loyalty for local products is likely to allow the firm the luxury to charge a price premium for the product. Therefore, hypothesis 2 is that small (large) geographic scale of launch is associated with lower (higher) market level price sensitivity.

However, national scale products are likely to possess some distinct market advantages as well. Despite less market exuberance for the products, a large geographic scale of launch product is likely to benefit from firm level resource allocation. These allocation benefits may include increased distribution and marketing support (Frattini, Dell'Era and Rangone 2013; Wind and Saaty 1980). This is likely to impact both consumer and retailer adoption processes, which are major factors driving overall new product performance (Plouffe, Vandenbosch and Hulland 2001).

Bronnenberg and Mela (2004) found that retailer adoption of new products occurs slowly and that contagion effects drive adoption among distribution area overlaps. Retailers are more likely to adopt new products that are selling well elsewhere. Garber et al. (2004) showed that the density of early retailer adoption and resulting sales performance are strong predictors of long-term new product success, with higher initial density positively related to higher overall new product success. Retailers also may recognize the immense category dominance of the few leading products and extrapolate that nationally distributed products have a better chance of achieving such category leadership success (Pare and Dawes 2012). Comparatively, devoting shelf space to small, locally distributed products may prove to be costly, while yielding minimal sales benefit (Boyd and Bahn 2009; Elberse 2008). Despite commanding a loyal customer base,

retailers may fear that local products just simply serve too few customers.

National scale launches may possess significant advantages due to their firm's more exhaustive existing distribution agreements with national retail chains. A locally launched product is comparatively tasked with a more difficult road in securing market level distribution intensity. Retail chains that overlap across markets are likely to prefer distributing a single national product across geographies, rather than go through the trouble of distributing different local products in its various markets. Hypothesis 3 predicts that large (small) geographic scale of launch is associated with higher (lower) per market retail distribution intensity.

Market sales response to retail distribution intensity is likely to depend on geographic scale of launch as well. Nationally launched products are likely to possess significant product awareness benefits due to cross-market word of mouth (Berger, Sorenson and Rasmussen 2010; Chevalier and Mayzlin 2006; Feick and Price 1987). Product awareness serves as a heuristic to simplify consumer choice tasks (Macdonald and Sharp 2000). Coupled with high in market distribution intensity, elevated product awareness levels of nationally launched products could have a substantial impact on consumer choice for the product. A highly available and known of product is likely to perform very well in the market.

However, if a nationally distributed product is not intensely distributed within each market, this coupling effect is unlikely to occur. Under scenarios of low market level distribution, it may actually be the local product that will elicit more sales response. The local product is likely to be distributed just to retail locations (such as Whole Foods and Trader Joes) that specifically attract niche customers who want local products.

Distributing more intensely across other retail outlets is unlikely to bring as much sales response benefit to local products. So, there is a hypothesized interaction effect between geographic scale of launch and scale of in market distribution on in market sales. Nationally launched products benefit more from intensive in market distribution, while locally launched products are more efficient in eliciting sales from a more targeted in market distribution strategy. Hypothesis 4 suggests that large (small) geographic scale of launch increases the market level sales performance returns to high (low) distribution intensity.

In-store promotional support is also an important driver of consumer choice (Chandon et al. 2009). Promotional support represents a risk-based signal of product quality to the consumer (Kirmani and Rao 2000). The signal is risk-based in that the firm is risking its reputation by pushing the product through promotion to consumers. According to Kirmani and Rao (2000), such reputation risking signals are most effective when the firm actually has something valuable to risk in the eyes of consumers. It is rather simple to extrapolate that a nationally distributed product is likely to possess higher reputation risk than a locally distributed product. So, from a quality signaling perspective, in store promotional support is likely to be more effective for a large scale geographic launch.

Also, Luan and Sudhir (2010) note that it can be difficult to forecast advertising effectiveness for new product introductions from historical new product success data on other products; product specific information is more valuable in the forecast process. Organizational learning from the initial markets that the product is launched into also could help the firm improve launch strategy marketing tactics in its other markets.

Chandon et al. (2009) stress that not all in store promotion activity is equally effective. Thus, a multimarket launch of a product also could conceivably lead to more effective promotional activity due to firm learning in its various entered markets. Therefore, according to hypothesis 5, it is predicted that large (small) geographic scale of launch increases (decreases) the effectiveness of store level promotional support.

As noted earlier, one of the advantages of local launch is that the firm can likely claim a quality advantage over more nationally scaled product launches (Carroll and Swaminathan 2000). Indeed, large, national scale product launches generally lead to reduced product quality in order to meet goals of scale and efficiency. Quality discrepancies may grow particularly large when shipping the product across large distances may degrade delivered product quality. Therefore, for perishable goods, local products are likely to possess more sales performance advantages. Nationally launched products in such product categories will face significant challenges in providing efficient distribution and will also face concerns from consumers about the ability to assure freshness at the time of actual consumption. So, lastly, hypothesis 6 predicts that large (small) geographic scale of launch is less (more) effective in perishable goods categories.

Due to their small, yet fervent base of consumers, local products are predicted to command high sales response and to be relatively price inelastic. Perishable goods categories also are likely to accentuate the quality differences between local and national products. National products, by contrast, will possess significant distribution advantages and will rely on intense distribution and promotion activity to capitalize on elevated awareness levels. Thus, local and national product launches are expected to function much differently. Table 2.1 presents a summary of the hypothesized relationships.

Table 2.1

Hypothesized Relationships

	Hypotheses
H1	Small (large) geographic scale of launch is associated with higher (lower) market level product sales.
H2	Small (large) geographic scale of launch is associated with lower (higher) market level price sensitivity.
H3	Large (small) geographic scale of launch is associated with higher (lower) per market retail distribution intensity.
H4	Large (small) geographic scale of launch increases the market level sales performance returns to high (low) distribution intensity.
H5	Large (small) geographic scale of launch increases (decreases) the effectiveness of store level promotional support.
H6	Large (small) geographic scale of launch is less (more) effective in perishable good categories.

Methods

To test the impact of launch strategy on new product performance, I use the Information Resources, Inc. (IRI) marketing database (Bronnenberg, Kruger and Mela 2008). These data include 31 food and nonfood fast moving consumer packaged goods (FMCG) categories. The analysis utilizes ten years of data (2001 – 2010), but the set of new product launches included for study are restricted based on their initial launch date (2001-2005) to allow for sufficient roll out activity and to sufficiently reduce right side censoring.

I identify the sample of new products via the sales histories available within the IRI dataset. I developed explicit processes to address censoring concerns on both the left and right hand sides of the data. Products are identified as brand variants: for example, Pepsi Maxx and Diet Pepsi are each considered separate products in the analysis. However, the varieties of SKUs (stock keeping units) offered within a product are not

considered separate products. These SKU varieties may include different sizes, flavors and varieties of a single product such as Pepsi Maxx.

To assure that a new product in the sample was, in fact, a new product, I utilized 2001 as a calibration period. If a product was sold in any market during any week of 2001, it already existed. I then began identifying new product introductions as of the first week of 2002. A new product is identified and defined by its first sale in any of the 50 markets in the national dataset. I deemed this event as the initial launch week of the product.

To address right hand censoring, I need to restrict the new product sample time frame to allow ample time for market roll out activity. I thus include new products launched in 2002, 2003, 2004, and 2005 only. The years 2006 – 2010 are used solely to study market level roll out success.

The analysis data, which include the 2,914 new products launched in 31 fast moving consumer goods (FMCGs) industries in the United States, display a significant level of variety in geographic launch scale. A significant number of new products are not launched with any geographic scale. In the data, 515 (or 17.67% of the total sample) new products were launched initially in just 1 market and then never launched in any other market. Some of the local only launches may be due to choice (such as new products launched by local microbreweries in the beer category), while some of these launches may be due to poor initial market launch performance. The category level overviews of these launch tendencies are summarized in Table 2.2. This tabular summary includes information on local launch frequency, national launch frequency and average market entry lag time.

Table 2.2

Observed Launch Statistics by Category

Category	N	Local	National	Avg. Markets	2nd Market Lag (Weeks)	Last Market Lag (Weeks)
Beer	486	118	0	13.56	65.16	226.32
Blades	40	1	21	37.51	5.38	75.67
Carb. Bev.	114	13	34	25.57	24.18	112.69
Cigarettes	136	56	5	10.73	42.49	119.70
Coffee	128	33	4	11.58	45.11	161.69
Cold Cereal	140	11	46	36.53	14.31	100.63
Deodorant	74	1	36	35.08	15.08	112.68
Diapers	12	3	2	29.33	38.44	180.11
F-Tissue	25	3	1	13.18	27.59	113.41
Fr. Entrees	128	16	22	23.92	7.94	91.71
Frozen Pizza	67	7	14	26.02	16.05	89.33
Hotdog	69	29	0	6.48	17.80	50.48
HH Clean	84	8	6	21.03	19.45	161.97
L-Detergent	29	3	3	21.04	31.38	173.42
Marg./Butter	11	1	5	27.50	21.30	35.90
Mayo	25	3	3	15.45	60.23	171.82
Milk	86	30	2	11.27	30.98	98.41
Must./Ketch.	79	22	4	15.09	49.56	189.23
P-Towels	14	5	1	21.33	5.22	203.78
Pean. Butter	16	5	5	34.64	5.55	144.00
Photo	12	0	5	35.83	16.00	125.42
Razors	23	1	16	46.91	0.95	26.36
Salt Snacks	378	81	34	17.49	27.19	126.55
Shampoo	295	15	65	28.84	14.65	130.35
Soup	50	4	10	19.80	50.24	148.13
Spag. Sauce	101	19	5	15.96	26.46	156.26
Sugar Sub.	18	4	1	15.29	15.43	199.21
Toilet Tissue	21	3	3	16.33	30.00	177.28
Toothbrushes	97	13	30	30.27	19.13	105.76
Toothpaste	65	1	30	37.91	11.75	108.98
Yogurt	102	17	22	23.62	22.18	100.19

A preliminary analysis of the performance differences among types of local launches revealed some interesting results. Those local products that remained past their first year on the market (local successes) had significantly higher weekly dollar sales performance than those local products that were pulled from the market within their first year on the market (local failures). There was also a subset of eventual multimarket launches that began as local only for a substantial amount of time (for at least 10 weeks) before eventually entering subsequent markets (initially local). Initially local products were the best performing of the three launch types. However, all three of these observed launches had significantly lower per market sales performance than the average multimarket launch did due to the inability to achieve significant market level retail distribution intensity. It is plain to see that the variance by category is quite high. In some categories, like razors, new product penetration tends to be national (with an average total market penetration of 46.91 markets). Meanwhile, in other categories such as milk, new product launches are more localized (with an average total product launch penetration of 11.27 markets).

Sequential market roll out activity (Ainslie et al., 2005) is quite common among new products in the sample. In fact, almost every new product (2,357 of 2,399) that is launched in two or more of the available 50 markets during the observation period is done with some type of sequential roll out strategy. Only 42 new products were launched in more than 1 market initially and then never rolled out into subsequent markets. Some market rollouts occur very quickly, while others occur over much longer periods of time.

Sales represent the new product performance metric of interest in this study. The measurement of market level new product sales performance is important for several firm

strategic reasons. Despite a common practice in academics to focus on more global brand or firm level outcomes, actual managers commonly echo a concern about measuring and understanding product level outcomes (Griffin and Page 1993). Managing products more closely seems to be a scenario where managers can directly tie performance to strategic actions. Such logic may also be extended to the need to understand market level, rather than just national (or global) level new product performance. Understanding how certain market factors impact the performance of launches may help improve both market specific and more global product management practices. Additionally, sales performance of products is strongly linked to other important performance measures such as profitability (Langerak, Hultink and Griffin 2008).

Four additional dependent variables are also identified in the model: price, promotion, markets, and distribution intensity. Geographic scale of launch (markets) and market level distribution intensity are intermediary performance goals; a product must first gain retail distribution in order to generate sales from end consumers. Price and promotion represent firm strategy variables.

Sales is measured as the dollar sales for product i in market j in week t. Price is the average unit price of new product i in market j in week t. Promotion is the percentage of volume either sold on in store display or with feature support in store level print advertising for new product i in market j in week t. Markets measures the geographic scale of launch and is the total number of markets that new product i is distributed in during week t. Lastly, distribution intensity is the cumulative average carrying volume for the retail locations selling new product i in market j in week t.

Category concentration, which is captured with a Herfindahl-Hirschman Index

(HHI), see Equation 1, is included as a control variable to account for the concentration of sales among a few category leaders. This index includes the market shares of all brands in the category in its calculation and, thus, empirically indicates a holistic picture of category concentration conditions.

Traditional economic theory views concentration as an asymmetric distribution of market power (Bain 1951) and suggests that it may have important implications for the competitive environment. Concentration is likely to negatively affect average new product performance due to an increase of competition among large firms at the market center and a simultaneous increase of competition among small firms at the peripheries of the market (Carroll 1985; Carroll and Swaminathan 2000; Swaminathan 2001).

High private label share may indicate a category level opportunity for national brands to introduce successful new products. Private label share is generally high when national brands are not dominant in the category and when competitive conditions among national brands are milder (Hoch and Banerji 1993; Raju, Sethuraman and Dhar 1995). I measure private label share by dividing private label volume sales by total category volume sales.

A dummy variable is included to indicate new to category brand status at time of initial national launch of the product. I also include an estimate of brand equity. Following the literature, brand equity is calculated as the brand's revenue premium over the private label brand in the category (Ailawadi, Lehmann and Neslin 2003). Introducing new products is known to increase brand equity in the long run (Slotegraaf and Pauwels 2008) and brand equity is expected to increase the performance of new product introductions (Smith and Park 1992).

A brand may also join a distributor network. By utilizing multiple distributors for the new product, the brand may have access to more trade areas and more retailer-distributor B2B relationships. However, using multiple distributors may also indicate a lack of channel power and that the product is simply selling at the will of multiple weak distributing partners. Thus, it is unclear what impact a distribution network may have on new product performance. I measure the distributor network as the number of distributors across the nation for the product.

A brand may also exist within a house of brands network present within the category. For example, Procter & Gamble offer several brands within most categories in which they compete. A brand like Tide would thus be part of a house of brands network in the laundry detergent category. A house of brands strategy can signal quality about the brand's product offerings (Heil and Robertson 1991; Keller 1998; Kirmani and Rao 2000).

The house of brands network is measured as the count of the number of brands within the same house of brands in the focal market. Membership in a house of brands network is expected to positively influence new product performance due to these various factors.

Table 2.3 reports the full descriptions of the model variables. Table 2.4 reports the descriptive statistics of the model variables including the mean, standard deviation, minimum, and maximum values. Lastly, Table 2.5 reports the raw pairwise correlations of the model variables. Significant correlations are presented in bold text for ease of understanding. Additional model aspects and terms are discussed directly after the presentation of these tables in the text.

Table 2.3

Description of Analysis Variables

Variable	Description
Sales	Dollar sales for new product i in market j in week t
Price	Average price per unit for product i in market j in week t
Promotion	Percentage of volume sold on display and/or feature for product i in market j in week t
Markets	Total number of markets entered by product i in week t
Concentration	HHI index of brand volume share in category c in market j in week t
Private Label	Percentage volume share commanded by private label in category c in market j in week t
New Brand	The product was introduced by a new to category brand at time of initial new product launch (first market entered)
Brand Equity	Revenue premium of brand over the private label in category c in market j in week t
Perish	The category is specified in Bronnenberg et al. (2008) as highly perishable
Dist. Network	Number of distributors used by brand b in category c across the U.S. in week t
House of Brands	Number of brands in brand b's house of brands network within category c across the U.S. in week t
Dist. Intensity	Total ACV (average carrying volume) of distribution for product i in market j in week t

Table 2.4

Model Variable Descriptive Statistics

Variable	Mean	SD	Min	Max
Sales ($)	$325.28	$967.00	$0.01	$243,744.50
Price ($)	$8.17	$11.41	$0.01	$662.01
Promotion (%)	16.33%	28.33%	0.00%	100.00%
Markets (#)	36.43	16.82	1.00	50.00
Concentration (#)	0.19	0.15	0.03	0.99
Private Label (%)	9.15%	10.95%	0.00%	98.39%
New Brand (1=yes)	26.94%	44.36%	0.00%	100.00%
Brand Equity ($)	-$0.03	$0.33	-$10.10	$8.57
Perish (1=yes)	16.22%	36.87%	0.00%	100.00%
Dist. Network (#)	1.27	0.59	1.00	5.00
House of Brands (#)	7.40	9.14	1.00	69.00
Dist. Intensity ($)	$321.05	$345.75	$0.07	$3,115.05

Table 2.5

Correlations

	Sales	Price	Promotion	Markets	Concentration	Private Label	New Brand	Brand Equity	Perish	Dist. Network	House of Brands
Price	**-.07**										
Promotion	**.18**	**-.08**									
Markets	**.18**	**-.24**	**.07**								
Concentration	**.04**	**-.18**	**-.01**	**.09**							
Private Label	**.02**	**-.28**	**-.02**	**-.00**	**.16**						
New Brand	**-.09**	**.08**	**-.03**	**-.37**	**-.04**	**.02**					
Brand Equity	**.19**	**.04**	**.09**	**.17**	**.09**	**-.51**	**-.12**				
Perish	**.01**	**-.10**	**.04**	**-.10**	**-.05**	**.29**	**.03**	**-.23**			
Dist. Network	**-.00**	**.00**	**.01**	**.12**	**-.07**	**-.11**	**-.13**	**.07**	**-.10**		
House of Brands	**.11**	**.12**	**.11**	**.23**	**-.27**	**.03**	**-.14**	**-.05**	**.06**	**.04**	
Dist. Intensity	**.46**	**-.13**	**.09**	**.42**	**.05**	**-.00**	**-.20**	**.14**	**-.03**	**.08**	**.15**

Following Bayus and Putsis (1999), the instrumental variables selected for the three stage least squares regression are derived from competitive actions. Bayus and Putsis (1999) argue that any one firm's strategy is not important enough to alter the strategy of market competitors, but that the range of competitive strategies do significantly alter a single firm's strategies. Model instruments are identified by the mean and the variance of competitor's market actions for the five endogenous variables: price, promotion, markets, distribution intensity and sales. For example, the mean ("competitor sales") and variance ("competitor-sales variance") of competitive brand level sales are used to create instruments for new product i's sales.

A product fixed effect (μ_i) is also estimated in the equations to control for any

potential unobserved heterogeneity that may explain performance differences among the different new products in the data set (Sriram, Balachander and Kalwani 2007). Following Chintagunta, Gopinath and Venkataraman (2010), a market fixed effect (ρ_j) is also estimated to control for potential market level differences. A model constant (α_0) and error term (ε_{ij}) round out the model equation. Each model includes five simultaneously estimated equations in the three stage least square systems: the price, the promotion, the markets, the distribution intensity and the sales equations.

Both models use three stage least squares regression models (Zellner and Theil 1962). The three stage least squares modeling approach allows the endogenous dependent variables (sales, markets, distribution intensity, price and promotion) to change in response to the other endogenous factors and the exogenous variables specified in the model. Therefore, product strategy may adjust in response to product performance and vice versa. The main effect only analysis is model M1. Its estimates provide the tests for H1 and H3. Interactions of interest are added in M2 to provide empirical tests for H2, H4, H5, and H6.

Results

The main effect results estimated by model 1 are reported in Table 2.6. Because the three stage least squares (3 SLS) equation includes five dependent variables, each dependent variable is discussed independently to clearly explain the results. The core dependent variable of interest is market level sales, which is why the results for this outcome variable are presented in the first column of the table and given the most attention in the discussion section.

Table 2.6

Results with Main Effects Only

Model	M1	M1	M1	M1	M1
DV	Sales	Price	Promotion	Markets	Dist. Intensity
Model Variables					
Constant Term	**-2.730** ***	**0.049** ***	**0.038** ***	**-0.599** ***	**1.921** ***
Sales	---	**-0.007** ***	**0.028** ***	**-0.070** ***	**0.455** ***
Price	**-0.230** ***	---	**-0.009** ***	**-0.024** ***	**-0.054** ***
Promotion	**0.777** ***	**-0.075** ***	---	**-0.091** ***	**-0.643** ***
Markets	**-0.037** ***	**0.043** ***	**-0.007** ***	---	**0.483** ***
Concentration	**-0.545** ***	**-0.107** ***	**0.008** ***	**0.152** ***	**-0.040** ***
Private Label	**1.068** ***	**0.237** ***	**-0.037** ***	**0.329** ***	**-1.131** ***
New Brand	**0.050** ***	**0.134** ***	**-0.001** **	**-0.206** ***	**-0.055** ***
Brand Equity	**0.467** ***	**-0.061** ***	**0.023** ***	**0.158** ***	**-0.184** ***
Dist. Network	**-0.040** ***	**-0.064** ***	**0.014** ***	**-0.041** ***	**0.110** ***
House of Brands	**0.087** ***	**-0.053** ***	**0.010** ***	**0.125** ***	**-0.024** ***
Dist. Intensity	**1.095** ***	**0.011** ***	**-0.026** ***	**0.383** ***	---
Instruments					
Competitor Sales	**0.165** ***	---	---	---	---
Competitor Price	---	**0.802** ***	---	---	---
Competitor Promotion	---	---	**0.792** ***	---	---
Competitor Markets	---	---	---	**0.724** ***	---
Competitor Dist.	---	---	---	---	**0.061** ***
C-Sales Variance	**0.154** ***	---	---	---	---
C-Price Variance	---	**0.323** ***	---	---	---
C-Promotion Variance	---	---	**-0.041** ***	---	---
C-Markets Variance	---	---	---	**-0.166** ***	---
C-Dist. Variance	---	---	---	---	**-0.021** ***
Model Details					
Product FE's	Y	Y	Y	Y	Y
Market FE's	Y	Y	Y	Y	Y
N	1,784,320	1,784,320	1,784,320	1,784,320	1,784,320
Adj. R^2	0.643	0.739	0.142	0.406	0.609

Price has a negative impact on sales performance, while promotional support has a positive impact. New products perform worse when the category has concentrated sales among a few brands, while high private label share indicates favorable conditions for new product launch. Brand equity has a positive impact and, when brand equity is held constant, products introduced by new to category brands outperform those introduced by existing brands. Membership in a distribution network harms sales performance, while a

house of brands network positively influence sales performance. Lastly, distribution intensity among retail locations within the market has a large positive impact on sales.

The instruments of the sales equation also have significant impacts. When sales of the average brand competitor are high, new product sales are generally higher. Variance among the sales levels of brand competitors also has a favorable impact on new product sales performance.

Support for H1 is found in this model: when distribution intensity in the market is held constant, the number of markets that a new product has entered has a negative and significant impact on market level sales. This result indicates that localized launches are more efficient in generating sales among consumers, despite their overwhelming disadvantages in gaining market level retail distribution.

Firm level size factors have a negative impact on price. Brand equity, distribution network size, and house of brands structures all have negative impacts on price. Meanwhile, new to category brands generally launch higher priced products. As a firm grows larger, it must serve a larger customer base that has more varied preferences (Fornell 1995). The results here indicate that one way that large firms tend to larger customer bases is by introducing new products with lower prices.

The relationship between size and price is not the same at the product level, however. As a new product gains more distribution both across (markets) and within (distribution intensity) markets, its price level increases. This result may indicate a tendency to raise price as the product gains a more dominant position in the market. Gaining retail adoption is a key component of FMCG success (Bronnenberg and Mela 2004), and managers of these new products appear to leverage distribution advantages

within and across markets to increase profit potential of the product.

By comparison, competitive conditions have similar effects on price as they do on sales: concentration of the category has a downward pressure on price, while private label share allows prices to rise. Concentration likely leads to price competition among large firm competitors, which could lead to price wars (Carroll 1985). The increase in price level in response to high private label share may be due to a national brand preference to differentiate from the large share private label by focusing on smaller, high priced market segments (Randall, Ulrich and Reibstein 1998).

Promotion has a negative pressure on price. I would expect this effect as promoted items are generally on a price discount (Blattberg, Briesch and Fox 1995). Lastly, the instruments for price are both significant in the model: average price of brand competitors and the variance among price level of brand competitors both have positive effects.

Increased sales for the new product leads to more promotional support due to an increase in available resources. However, as distribution for the product increases both within and across markets, promotion activity subsides. Managers likely find it more beneficial to rely on strong in store shelf space advantages to save on unnecessary promotional expense.

Products introduced by new to category brands are promoted less. Also, large-scale brands with more equity, larger distribution networks, and membership in house of brands structure all promote more. Concentration of the industry leads to increased promotion, while high private label share leads to decreased promotion. Price of the new product has a negative impact on promotion activity.

The instruments for promotion are both significant in the model. Average promotion activity by other new products introduced in the category has a positive effect, while the variance of this competitor promotional activity has a negative effect.

High sales, high promotion, and high price at the market level all have negative impacts on the scale of geographic launch. Both high category concentration and private label share in the category favor increasing geographic scale. New brands generally have lower geographic scale, while high equity brands have higher geographic scale. Distribution networks lead to lower geographic scale. House of brands structure and distribution intensity in the market positively influences geographic scale of launch. The model instruments have significant impacts as the average markets entered by competing new products has a positive effect, while the variance of this factor has a negative effect.

Expansion across markets has a positive impact on market level distribution, providing support for H3. One of the major advantages that large geographic scale products have over local products is the ability to gain retail distribution of their products. These advantages exist both across and within markets.

Sales performance in the market leads to increased distribution intensity. High prices and high promotion activity are deterrents for retail distribution. When concentration of brand level sales and private label shares are high, conditions are poor for achieving retail adoption of the new product.

New to category brands are less effective in driving retail adoption of their products to achieve market level distribution intensity. Surprisingly, brand equity and house of brands membership have negative impacts on distribution of the new product. These negative effects are likely due to the strength of such brand's existing product

portfolios, which lessen the retail space for the new product. Only so much retail space is likely to be devoted to a single brand or house of brands. Utilizing multiple distributors is effective in driving retail distribution. Lastly, the instruments are significant: mean level distribution intensity achieved by competitor new products has a positive impact and the variance of this measure has a negative impact.

Table 2.7 adds the interaction terms of interest. The added terms to M2 include those coefficients that test H2, H4, H5, and H6. Support is found for all four hypotheses in this model. Large geographic scale new products experience increased price sensitivity, as evidenced by the negative and significant interaction between price and markets (H2). However, the returns to high distribution intensity are higher for large geographic scale of launch products (H4) and promotional support is more effective for new products launched with significant geographic scale (H5). Thus, low geographic scale of launch products experience less returns to either intense distribution or intense promotional support. Lastly, high geographic scale new products experience lower performance in perishable good categories than low geographic scale of launch products do (H6).

Importantly, the other terms remain consistent with model 1. Therefore, adding the interaction terms of interest does not significantly change the core results. This indicates a general level of stability in the quality of the models and provides credence to the entirety and accuracy of the results. Due to this overall model consistency, considerable confidence can be claimed to back the interaction term results of interest. The significance of the model instruments in both models 1 and 2 also lends further support for the quality of these empirical results.

Table 2.7

Results with Interaction Terms

Model	M2	M2	M2	M2	M2
DV	Sales	Price	Promotion	Markets	Dist. Intensity
Model Variables					
Constant Term	**-0.473** ***	**0.050** ***	**0.038** ***	**-0.605** ***	**1.920** ***
Sales	---	**-0.007** ***	**0.028** ***	**-0.072** ***	**0.450** ***
Price	**-0.254** ***	---	**-0.009** ***	**-0.024** ***	**-0.054** ***
Promotion	**0.416** ***	**-0.076** ***	---	**-0.089** ***	**-0.636** ***
Markets	**-0.603** ***	**0.043** ***	**-0.007** ***	---	**0.485** ***
Concentration	**-0.567** ***	**-0.107** ***	**0.008** ***	**0.153** ***	**-0.035** ***
Private Label	**0.986** ***	**0.235** ***	**-0.036** ***	**0.332** ***	**-1.119** ***
New Brand	**0.053** ***	**0.134** ***	**-0.001** **	**-0.205** ***	**-0.055** ***
Brand Equity	**0.409** ***	**-0.061** ***	**0.023** ***	**0.159** ***	**-0.181** ***
Dist. Network	**-0.037** ***	**-0.064** ***	**0.014** ***	**-0.042** ***	**0.110** ***
House of Brands	**0.079** ***	**-0.053** ***	**0.010** ***	**0.125** ***	**-0.023** ***
Dist. Intensity	**0.636** ***	**0.010** ***	**-0.026** ***	**0.386** ***	---
Instruments					
Competitor Sales	**0.157** ***	---	---	---	---
Competitor Price	---	**0.802** ***	---	---	---
Competitor Promotion	---	---	**0.793** ***	---	---
Competitor Markets	---	---	---	**0.723** ***	---
Competitor Dist.	---	---	---	---	**0.062** ***
C-Sales Variance	**0.149** ***	---	---	---	---
C-Price Variance	---	**0.323** ***	---	---	---
C-Promotion Variance	---	---	**-0.043** ***	---	---
C-Markets Variance	---	---	---	**-0.165** ***	---
C-Dist. Variance	---	---	---	---	**-0.020** ***
Interactions					
Price x Markets	**-0.015** ***	---	---	---	---
Promotion x Markets	**0.099** ***	---	---	---	---
Perish x Markets	**-0.056** ***	---	---	---	---
Dist. Intensity x Markets	**0.135** ***	---	---	---	---
Model Details					
Product FE's	Y	Y	Y	Y	Y
Market FE's	Y	Y	Y	Y	Y
N	1,784,320	1,784,320	1,784,320	1,784,320	1,784,320
Adj. R^2	0.656	0.739	0.142	0.405	0.610

Discussion and Conclusion

The empirical support for the hypotheses is recapped in Table 2.8. In summary, I find that the scale of geographic launch has substantial impact on market level new product performance. Large-scale product launches ("national products") enjoy increased distribution intensity due to higher rates of retailer adoption. These launches also enjoy sales response to in store promotions and to high levels of distribution intensity. Meanwhile, all things held constant, smaller geographic scale ("local") products receive stronger consumer sales response and are less price elastic. Local products also possess additional performance advantages in perishable goods categories.

The core contribution of this research is the empirical relationships generated between geographic scale of launch and new product performance. Clear advantages and disadvantages arise with various levels of geographic scale that have not been well understood to date. These empirical relationships build on existing theory about the relationships between firm size and customer satisfaction rates (Fornell 1995) and the unique aspects of niche products (Kahn, Kalwani and Morrison 1988). Large, national scale new products rely on scale, efficiency, and prowess in distribution to attain high sales performance. Conversely, small, local scale new products possess raw advantages in terms of product desirability and low price sensitivity. However, this study does not just document the geographic scale of launch and new product performance relationship. Instead, by utilizing the three stage least squares estimation of firm strategy and firm performance variables, it allows for general contribution to other related areas of research in the field. For example, recent research has identified that the effectiveness of advertising and promotional support is often dependent on contextual product conditions.

Table 2.8

Review of Hypothesized Relationships

	Hypotheses	Empirical Support
H1	Small (large) geographic scale of launch is associated with higher (lower) market level product sales.	Yes
H2	Small (large) geographic scale of launch is associated with lower (higher) market level price sensitivity.	Yes
H3	Large (small) geographic scale of launch is associated with higher (lower) per market retail distribution intensity.	Yes
H4	Large (small) geographic scale of launch increases the market level sales performance returns to high (low) distribution intensity.	Yes
H5	Large (small) geographic scale of launch increases (decreases) the effectiveness of store level promotional support.	Yes
H6	Large (small) geographic scale of launch is less (more) effective in perishable good categories.	Yes

Also, advertising support tends to have a stronger impact on product performance in the early stages of the product life cycle; by contrast, word of mouth influence tends to be stronger in later stages of the product life cycle (Bruce, Foutz and Kolsarici 2012; Eliashberg, Elberse and Leenders 2006). As a product matures in the market, firms need to evolve their marketing tactics to continue to impact overall new product performance. For example, firms that incentivize sales force activity for products after the very early stages in the market enjoy continued sales force support and in turn higher overall product performance (Beuk et al. 2014). This research contributes to this growing body of work by allowing price and promotion to be set and updated on per market and per week bases by the firm. The reported empirical results improve understanding of what factors may drive promotional investment and what factors may drive a firm to increase or decrease price.

It is also important to stress that local product offerings are not for everyone.

These are by nature niche product offerings that serve a small segment of the market. Local products cannot compete with national products on scale or distribution intensity. Retail distribution intensity and the effectiveness of such intensity and in store promotions in driving sales is likely to be lower for local products. Still, local products are likely to command high sales response and low price sensitivity due to their select, niche base of consumers. Such local products are also likely to perform even better in perishable good markets, where localization leads to significant product quality advantages at time of purchase.

New product launch proficiency significantly impacts new product performance (Di Benedetto 1999; Henard and Szymanski 2001; Langerak, Hultink and Robben 2004). Firms must leverage capabilities and combat potentially turbulent industry conditions to bring a high quality product to market with significant speed (Calantone, Garcia and Droge 2003; Langerak, Hultink and Griffin 2008; Sherman, Souder and Jenssen 2000). However, bringing a product with a clear advantage to market quickly is only half the battle. The product also must be launched with sufficient firm support, strong product positioning, effective tactical strategies, and in markets in which the product inherently may perform well (Hsieh, Tsai and Hultink 2006). Thus, the launch strategy aspect of launch proficiency has garnered significant recent interest in the literature from a variety of perspectives. Once a strong product is developed well and quickly, it must be tactically deployed into the market successfully to maximize profit.

This research demonstrates for managers that the deployment challenges differ considerably among the classes of small and large geographic scale new products. Small-scale products face serious impediments to retail distribution and are likely to be only

stocked by niche market retailers (e.g., Whole Foods, Trader Joe's). By contrast, large-scale products possess significant distribution advantages but struggle with high price sensitivity. Large-scale products also enjoy significantly higher returns to both promotional support and high levels of in market distribution intensity than small-scale products do. Managers could benefit significantly by understanding these fundamental differences and adjusting product strategy in proper accordance.

In addition to product managers, retail managers can also benefit from the results of this study. Local products clearly serve a different market segment and tend to command low price sensitivity among their loyal base of customers. From a retail perspective, this indicates that offering local products has the potential to drive both high margins and high store loyalty. A very large portion of consumers, by contrast, buys national products. Thus, forgoing national product offerings in favor of more local product offerings is unlikely to be a favorable retail strategy. The best retail strategy is likely to find the best mix of both national and local product offerings to serve market needs. The results also indicate that share of local offerings from a retailer perspective should be highest in perishable good categories, where local offerings possess elevated performance levels.

The current research focuses solely on fast moving consumer goods. The impact of the geographic scale of launch and launch support tactics may vary important ways in other product categories. For example, when order of market entry is of significant importance, it may be optimal for firms to enter all markets quickly (Szymanski, Troy and Bharadwaj 1995). Comparatively, when firms are uncertain about market demands, it may make sense to begin marketing products in a few markets before scaling up

operations (Sherman, Berkowitz and Souder 2005). Starting small before building geographic scale could be a valuable way of avoiding over-commitment to potential product failures (Biyalogorsky, Boulding and Staelin 2006).

Additionally, future research could link the new product performance differences observed here to other important business functions. For example, a recent study by Ernst et al. (2011) found that new product performance not only represents an important growth tool for businesses, but that it can also influence the productiveness of customer relationship management. Surprisingly, it was found that new product performance fully mediated the relationship between customer relationship management and overall company level performance. Future studies could consider how the geographic scale of launch may impact the firm's organizational learning process or maybe even its ability to generate more sustainable business-to-business relationships with retailers.

Multimarket launches are found to roll out rather slowly over time. So, like the box office movie industry (Ainslie, Dreze and Zufryden 2005), sequential market rollout of new products in fast moving consumer goods categories can be a long and initial performance responsive process. More research could focus on the speed of the sequential roll out process and determining how it impacts overall new product performance.

A significant literature investigates how firms may enter global markets with their brands and markets. Optimal product development, effective tactical support, and consumer adoption processes are all significantly different across global markets (Lee et al. 2011; Nakata and Weidener 2012; Putsis et al. 1997; Van Everdingen, Folk and Stremersch 2009). Proper new product management and strategy can mitigate global

launch challenges and pitfalls (De Brentani, Kleinschmidt and Salomo 2010; Harvey and Griffith 2007; Kleinschmidt, De Brentani and Salomo 2007; Yeniyurt, Townsend and Talay 2007).

The findings in this research suggest some additional factors that may impact the success of global launch: the scale of global launch and how the launch is sequentially rolled out across global markets. Additionally, the comparison between domestic and import performance in global markets could serve to directly extend the current findings. Research is needed on this topic in the global setting to establish potential differences from a single domestic market setting.

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CHAPTER III

A SUMMARY AND SYNTHESIS OF THE FINDINGS

A Summary and Synthesis of the Findings

These two essays contribute to knowledge on the link between aspects of firm size and product performance. In the first essay, the notion of brand overextension that populates the marketing literature is empirically challenged. The findings indicate the high quality positioned and proliferated brands possess product launch advantages that are likely to stem from both an increasing set of new product development capabilities within the firm and from advantages in consumer adoption rates in the marketplace. The second essay considers how the geographic scale of launch may impact new product performance. Large, national scale launches are found to possess significant advantages in terms of retailer adoption rates and advertising response. However, more localized launches do possess important advantages as well. Local launches command price premiums, sell better per store, and are particularly successful in perishable goods product categories. Together, the two empirical essays in this dissertation help to contribute to knowledge on how the firm's existing size and structure may impact new product performance in the marketplace.

The first chapter of this dissertation finds that traditional marketing recommendations, that a brand should maintain a narrow and concise product breadth in the marketplace to preserve brand image and equity, might be off base. Much of the empirical evidence to back up these traditional marketing claims about the benefits of maintaining a narrowly defined brand has been derived from controlled laboratory experiment settings. Using actual data on new product launch performance, this essay finds that proliferated brands are more successful in introducing new products to market. Moreover, these data show that an overwhelming majority of managers follow the

prescriptive advice of maintaining a narrowly defined brand in the marketplace: about 85% of the observed new product launches are by brands that operate in only one of the 31 possible fast moving consumer goods product categories investigated. Thus, a vast majority of brands appear to be under-extending in the marketplace.

Importantly, these findings do not actually completely undermine the extant findings about the potential drawbacks of brand dilution. At some point of proliferation (such as if a brand were extended across all possible product categories), brand dilution effects are likely to take hold. However, in terms of actual, realized brand management strategies that are observable in the marketplace, it is safe to say that managers have taken the fears of brand dilution too far and have forgone potential expansion opportunities. If the pendulum of management practice were to swing too far in the opposing direction in response to these findings, it would be likely that an opposite empirical result would surface: overextension could become the norm of practice and brands would then need to scale down their level of proliferation. That being said, the most confident claim I can make from the current results is that brands are currently under proliferated and missing out on potential opportunities to viably serve additional customers.

It is also important to note the boundary conditions on the generally positive link between brand proliferation and new product performance. For one, brand proliferation appears to be a stronger strategy for low-quality brands than for high-quality brands. Low-end brands can focus on proliferation strategies to capture varieties of consumer segments without too much concern of backlash about over extension. Comparatively, high-end brands must be much more careful about angering their existing customer base

through over extension, especially into low-end segments of the market. Additionally, the value of brand proliferation in supporting a new product launch diminishes significantly when the firm operates multiple brands in a single category and attempts to launch a another new brand into that category. Such a circumstance leads to cannibalization and self-crowding among the firm's brand level offerings. So, clearly some limitations to the benefits of brand proliferation do exist. Over proliferation is a definite reality and should serve as a point of caution for brand managers; but, in general, most brands tend to error on the other side of the spectrum. The overwhelming majority of brands appear to be under proliferated in the marketplace.

The second chapter of this dissertation builds on the link between aspects of firm size and new product performance. Yet, instead of focusing on the proliferation and quality positioning level of the brand within and across categories, this second chapter focuses on the geographic scope of the product launch. Products with expansive geographic scale of launch (e.g., national products) have much different market performance outcomes than those products with minimal geographic scale of launch (e.g., local products).

Specifically, more localized product launches tend to have trouble achieving retail distribution in the markets they do enter. As products attain more geographic scale, they can take advantage of retail trade area overlaps across geographic markets to utilize multistore distribution contracts. Local and regional products fight an uphill battle to actually get their products on the shelves in the majority of retail locations within a geographic market. However, after the amount of in market distribution is controlled for, local product launches are found to have less price sensitivity and to sell better per store.

Thus, local products actually resonate well with end consumers; it is just the challenge of getting these products on the shelves and adopted by a wide array of retailers that remains the impediment to fulfilling their revenue potential per entered market.

A wide range of managerial implications arises from the findings of the second chapter of this dissertation. First, managers of product launches must approach the launch differently, depending on the planned geographic scale of the launch. Resource allocation should clearly be regulated based on the scenario. For example, efforts to reduce operational costs appear to be most advantageous for national products that have high price sensitivity levels, while efforts to lubricate retail adoption appear most crucial to the success of locally launched products. Also, retailers should take note of how well locally launched products are performing in the select retail locations that do choose to adopt and stock them. More retailers could potentially benefit from considering local and regional products to add to their existing national brand product assortments.

When considered in tandem, these two papers indicate evidence to describe the general link between the scope of the brand, the product, and new product performance. Advantages and disadvantages are inherent with different firm sizes and structures that are important for managers to understand. Brand managers must carefully balance the tradeoffs between expanding the brand, whether across categories, within categories, or across geographic markets. Expansion activity not only affects current revenue potential, but it also affects future revenue potential in the form of varying levels of new product launch performance. This research provides a reasonable, yet only an initial step, towards understanding this important relationship between structure of the firm, brand, or the product and performance of the new product.